

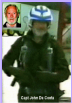
# **13 Feb 1969: A4G N-13 154908 – Side No. 887**

**Radar display detached during the very first A4G catapult launch from HMAS Melbourne.** Cause: Design Fault for securing the radar.

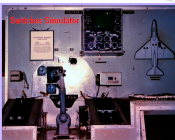
**During this launch the radar panel with its long body extending back into the instrument panel (being not properly secured) came out into the pilot's lap. Unable to eject (because of the large size of the panel body - length and weight) LCDR Da Costa skilfully flew the aircraft with its trim buttons and limited control stick movement to an emergency straight in landing back at NAS Nowra. Being able to survive such a drastic mishap enabled many previously unexplained USN catapult launch fatal accidents to be solved. Thereafter the radar screen in all A4s was secured by a very large extra fittings, especially whilst at sea.**

**LCDR Da Costa was the CO of VC-724 at this time but took the first catapult after HMAS Melbourne's long refit, as he was one of the most experienced RAN Skyhawk pilots, having trained in the USN with LCDR Dusty King earlier.**





story about Radar-scope falling into above A4G pilot's lap during 1st catapult next pages



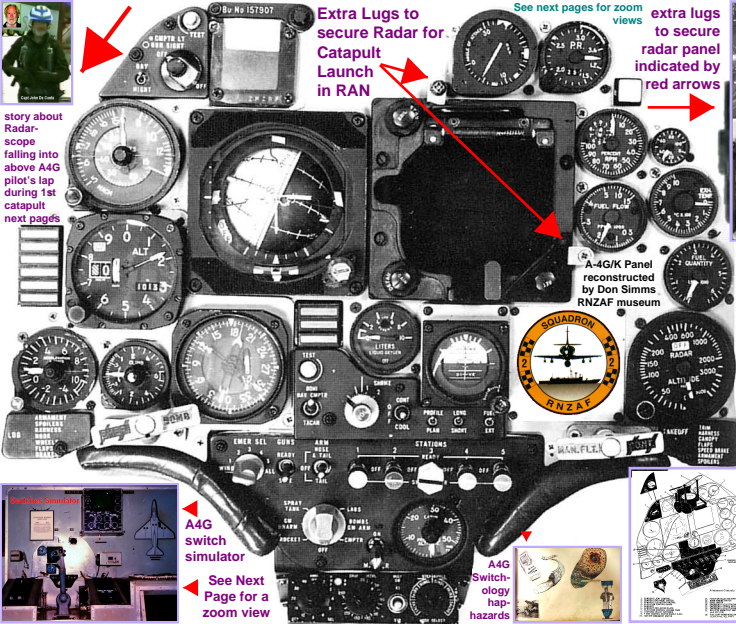
A4G switch simulator

See Next Page for a zoom view

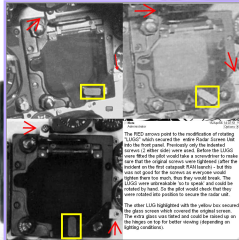
Extra Lugs to secure Radar for Catapult Launch in RAN

See next pages for zoom views

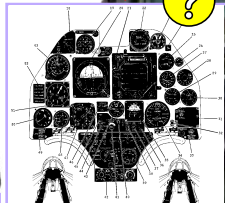
extra lugs to secure radar panel indicated by red arrows



A-4G/K Panel reconstructed by Don Simms RNZAF museum



CLICK ?



A-4G Cockpit - Typical Instrument Panel

- |   |  |
|---|--|
| 16. LANDING PANEL                             | 36. FUEL INT-EXT SWITCH                      |
| 17. ACCELEROMETER                             | 37. RADAR LONG-SHORT SWITCH                  |
| 18. ALTITUDE INDICATOR                        | 38. RADAR PICTURE-PLAN SWITCH                |
| 19. RADAR SCOPE                               | 39. ARMAMENT CONTROL PANEL                   |
| 20. LUGS (NATIVE)                             | 40. SPOILER/COILS SWITCH                     |
| 21. 4-04Y CLUCK                               | 41. SPOILER/COILS CONTROL                    |
| 22. PRESSURE INTENSITY INDICATOR              | 42. A-4G IN-CENTRE NEAR-POSS RELEASE SYSTEM  |
| 23. PRESSURE INTENSITY INDICATOR              | 43. LOGIC DOOR/QUALITY INDICATOR             |
| 24. FUEL QUANTITY INDICATOR                   | 44. 30W NAV COMPUTER, TROAN, WATCO SWITCH    |
| 25. FUEL QUANTITY INDICATOR                   | 45. TEST SWITCH (MASTER PRESS TO TEST)       |
| 26. FUEL QUANTITY INDICATOR                   | 46. INFLIGHT/ADVISORY LIGHTS (2)             |
| 27. FUEL QUANTITY INDICATOR                   | 47. BLANKING-OFF-SCALE-ALARM INDICATOR (20W) |
| 28. FUEL QUANTITY INDICATOR                   | 48. VERTICAL VELOCITY INDICATOR              |
| 29. FUEL QUANTITY INDICATOR                   | 49. LANDING CHECKLIST                        |
| 30. FUEL QUANTITY INDICATOR                   | 50. INFLIGHT/ADVISORY LIGHTS (2)             |
| 31. 4-04Y CLUCK                               | 51. ALTITUDE                                 |
| 32. RADAR ALTIMETER (LOW LIGHT WARNING LIGHT) | 52. CANTONMENT (LANDER LIGHTS)               |
| 33. RADAR ALTIMETER (1)                       | 53. W/REPS INDICATOR                         |
| 34. RADAR ALTIMETER (1)                       |  |
| 35. STANDBY ALTITUDE INDICATOR                |  |



A4G Switchology hazards

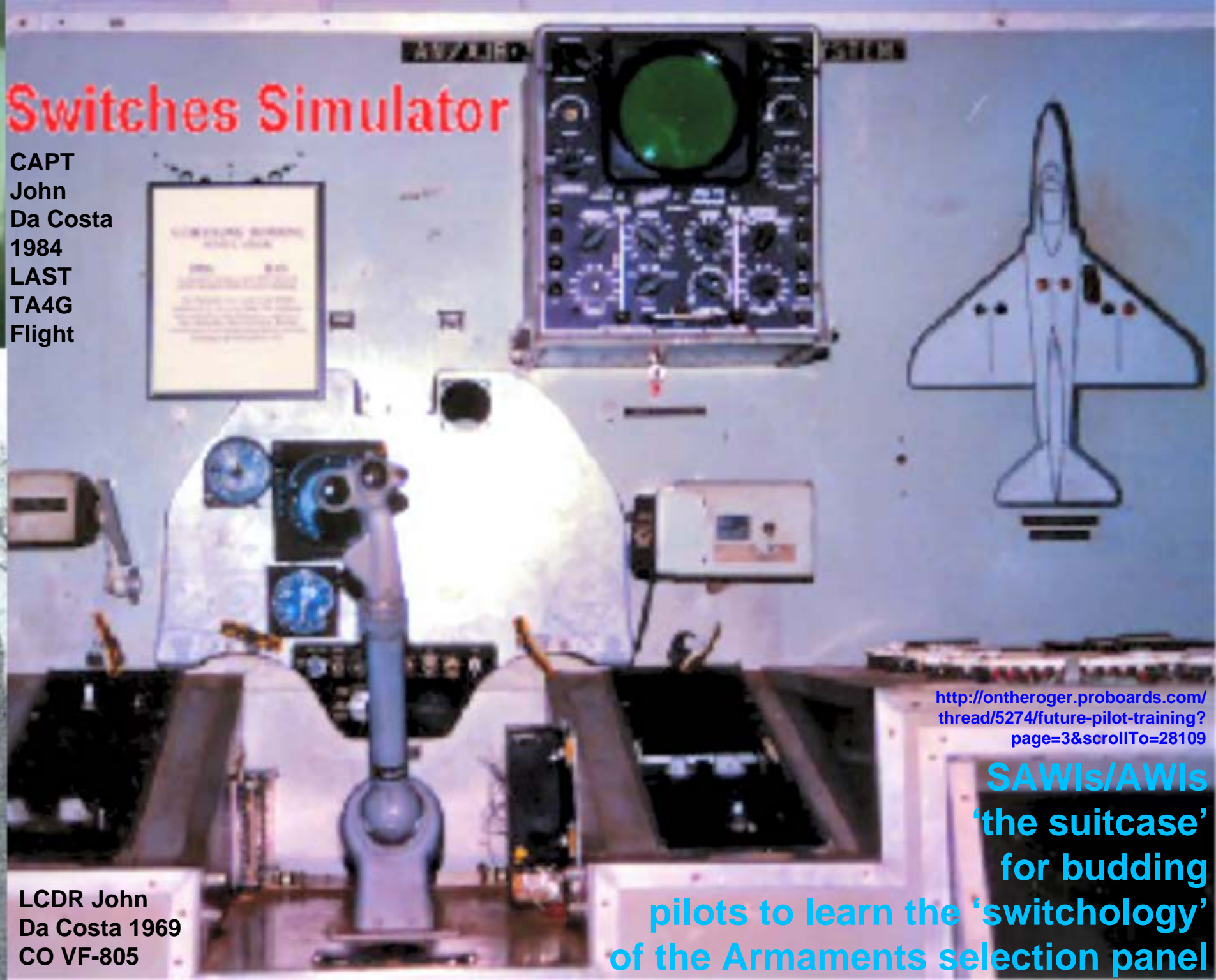




CAPT  
John  
Da Costa  
1984  
LAST  
TA4G  
Flight



LCDR John  
Da Costa 1969  
CO VF-805



<http://ontheroger.proboards.com/thread/5274/future-pilot-training?page=3&scrollTo=28109>

SAWIs/AWIs  
'the suitcase'  
for budding  
pilots to learn the 'switchology'  
of the Armaments selection panel

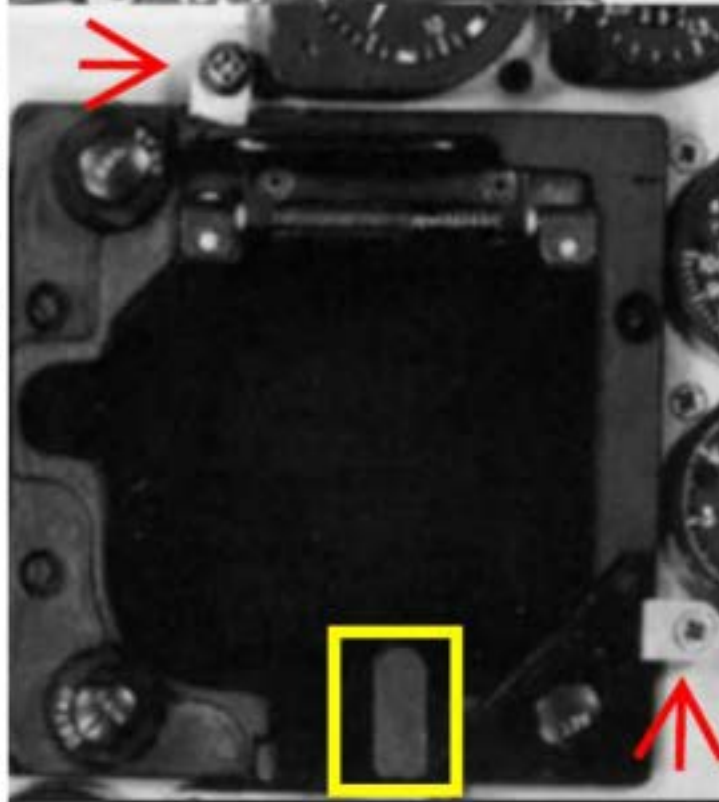
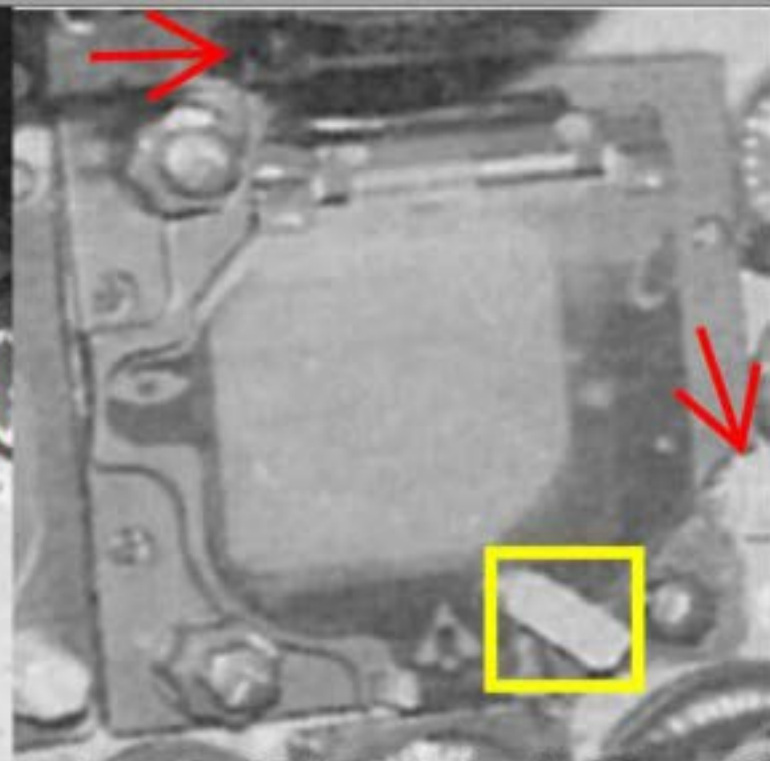
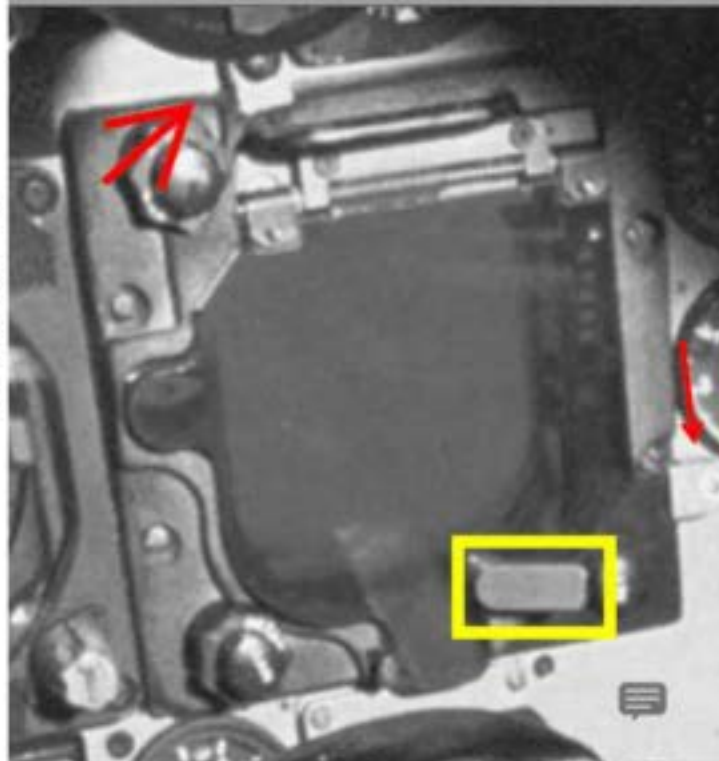
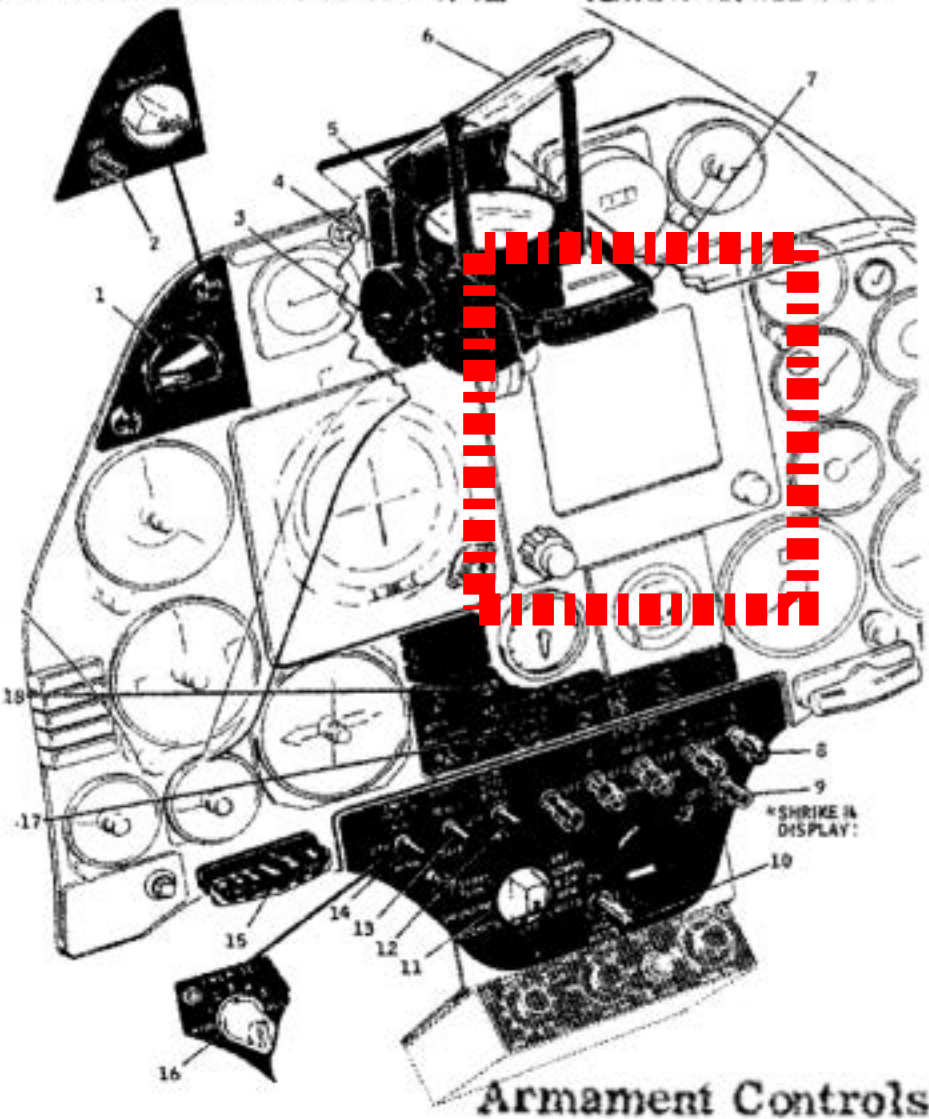
**Click Screen for a short video clip showing the outcome of jammed controls (to left) caused by radar unit dislodging?**





# THE BIG LUG FIX

- |                                   |  |
|-----------------------------------|--|
| 1. GUNSIGHT LIGHT CONTROL         | 11. FUNCTION SELECTOR SWITCH                         |
| 2. GUNSIGHT DAY-NIGHT SWITCH      | 12. BOMB ARMING SWITCH                               |
| 3. GUNSIGHT ELEVATION CONTROL     | 13. GUNS SWITCH                                      |
| 4. ELEVATION CONTROL GUARD        | 14. EMERGENCY SELECTOR SWITCH                        |
| 5. GUNSIGHT                       | 15. EMERGENCY STORES RELEASE                         |
| 6. GUNSIGHT REFLECTOR PLATE       | 16. EMERGENCY SELECTOR SWITCH (A-4 AFC 318)          |
| 7. ELEVATION CONTROL LOCKING YOKE | 17. WALLEYE NORM TEST SWITCH                         |
| 8. STATIONS SELECT SWITCHES       | 18. SIDS CONT-NORM MODE SWITCH (LATE A-4E, ALL A-4F) |
| 9. * SIDS CONTROL SWITCH (EARLY)  |  |
| 10. MASTER ARMAMENT SWITCH (A-4E) |  |



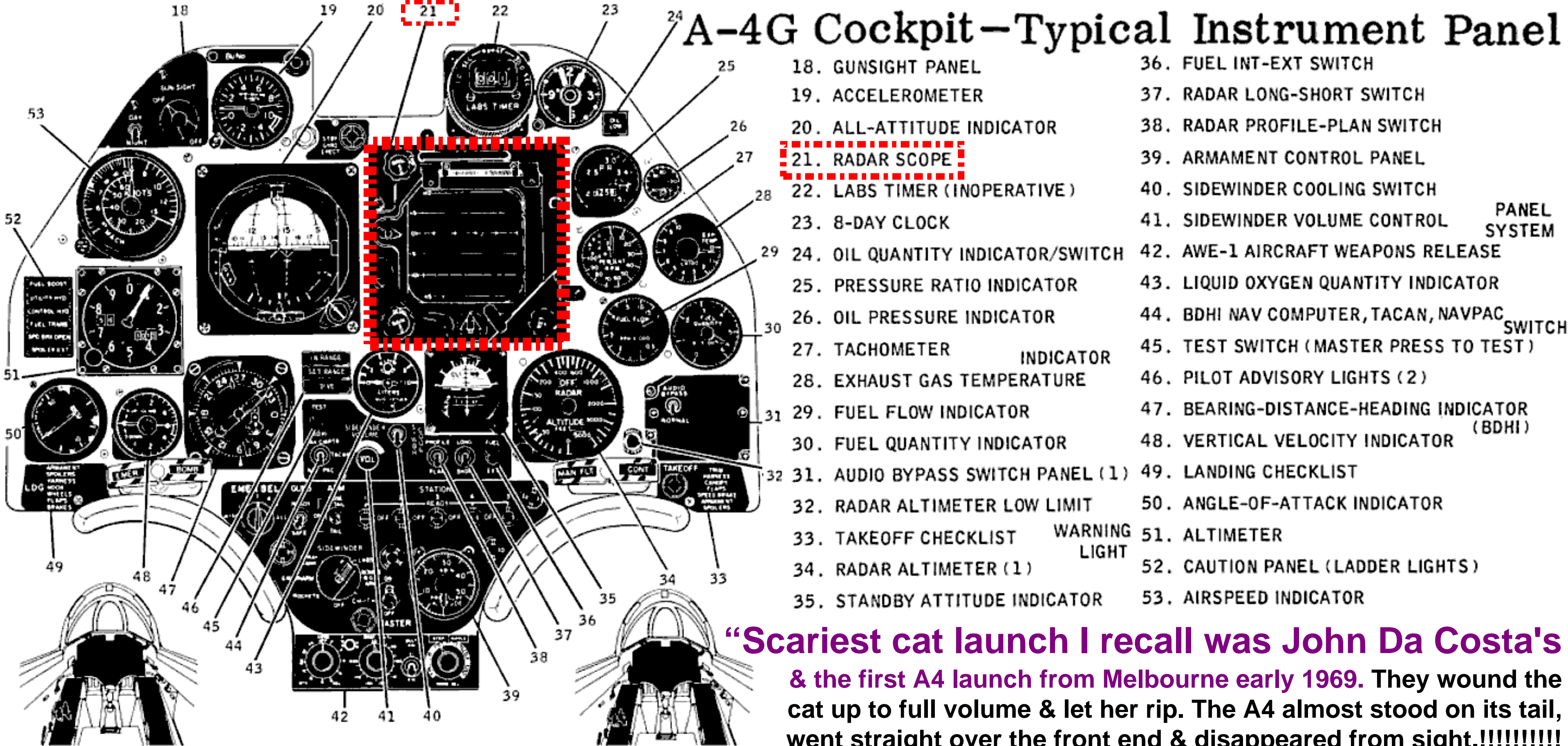
Note  
Administrator  
15/Apr/06 14:07:51  
Options

The RED arrows point to the modification of rotating "LUGS" which secured the entire Radar Screen Unit into the front panel. Previously only the indented screws (2 either side) were used. Before the LUGS were fitted the pilot would take a screwdriver to make sure that the original screws were tightened (after the incident on the first catapult RAN launch) - but this was not good for the screws as everyone would tighten them too much, thus they would break. The LUGS were unbreakable 'so to speak' and could be rotated by hand. So the pilot would check that they were rotated into position to secure the radar unit.

The other LUG highlighted with the yellow box secured the glass screen which covered the original screen. The extra glass was tinted and could be raised up on the hinges on top for better viewing (depending on lighting conditions).

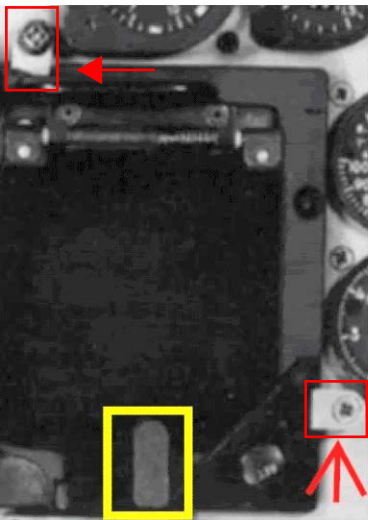
# BIG LUG FIX





After a few seconds it slowly appeared literally bouncing off the waves & sending the spray back over the flight deck!!!!!!! John slowly but painfully got it up off the floor & headed back to Nowra. Upon managing a safe trip home he taxied up to the line shack, shut down & beckoned Ken Pryor aka ‘Uckers’, line radio man at the time to come hither. As ‘Uckers’ climbed the ladder John opened the canopy & handed him the Radar indicator. What had happened was the A4G pulled close to 9Gs off the cat & the indicator popped out of the instrument panel & landed somewhere between the joy stick & his feet. It is tribute to the man that he piloted the bird to safety. [The events back at Nowra were recalled later at the big Naval enquiry which ‘moi’, as the duty radmech onboard was requested to attend with ‘caps off’.] All was forgiven however. The indicator, as were a lot of the instruments held in place by a pressure band. As a result the radar ind. became secured by lugs at the top & side.” **E-mail - Peter Barnes, 11 June 2011**

# How Radar Unit Secured Afterwards



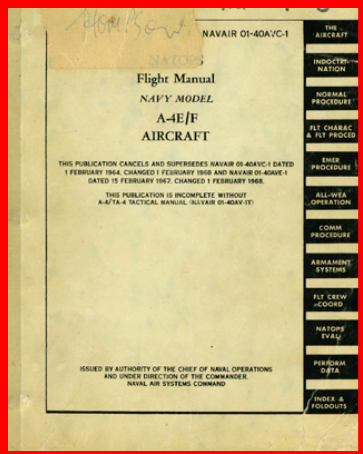
## AN/APG-53A radar unit modification

The RED arrows point to the modification of rotating "LUGS" which secured the entire Radar Screen Unit into the front panel. Previously only the indented screws (2 either side) were used. Before the LUGS were fitted the pilot would take a screwdriver to make sure that the original screws were tightened (after the incident on the first catapult RAN launch) - but this was not good for the screws as everyone would tighten them too much, thus they would break. The LUGS were unbreakable 'so to speak' and could be rotated by hand. So the pilot would check that they were rotated into position to secure the radar unit.

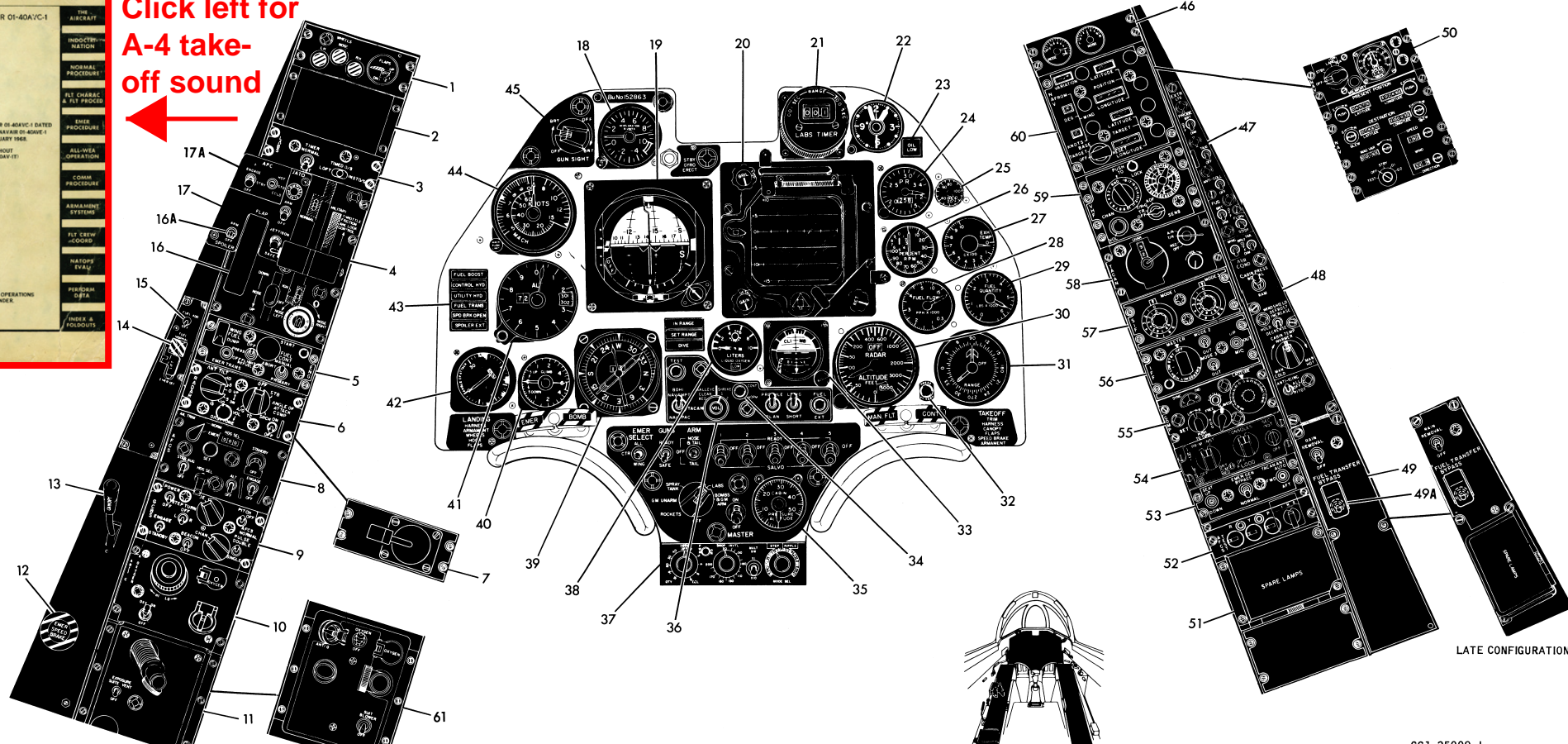
The other LUG highlighted with the yellow box secured the glass screen which covered the original screen. The extra glass was tinted and could be raised up on the hinges on top for better viewing (depending on lighting conditions).

**to prevent dislodging during catapulting**





Click left for  
A-4 take-  
off sound



A-4 AFC 387

LATE CONFIGURATION

GG1-25009-J

1. WHEELS AND FLAPS PANEL
2. BLANK PANELS (NOT REWORKED PER A-4 AFC 376)
3. LABS CONTROL PANEL (NOT REWORKED PER A-4 AFC 376)
4. THROTTLE PANEL
5. ENGINE CONTROL PANEL
6. RADAR CONTROL PANEL (NOT REWORKED PER A-4 AFC 256 OR REWORKED PER A-4 AFC 387)
7. ARN-77 CONTROL SELECTOR (REWORKED PER A-4 AFC 256)
8. AFCFS PANEL
9. GCBS PANEL
10. OXYGEN AND ANTI-G PANEL
11. ANTIEXPOSURE SUIT CONTROL PANEL
12. EMERGENCY SPEEDBRAKE CONTROL
13. CANOPY CONTROL HANDLE
14. MANUAL FUEL SHUTOFF CONTROL LEVER
15. SMOKE ABATEMENT SWITCH

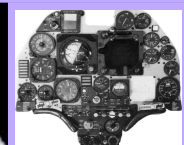
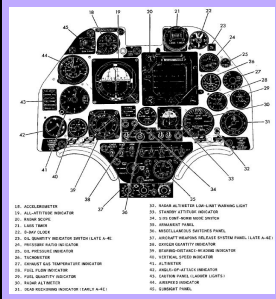
16. FLAP HANDLE
- 16A. SPOILER ARM SWITCH
17. JATO CONTROL PANEL
- 17A. APPROACH POWER COMPENSATOR CONTROL PANEL
18. ACCELEROMETER
19. ALL-ATTITUDE INDICATOR
20. RADAR SCOPE
21. LABS TIMER
22. 8-DAY CLOCK
23. OIL QUANTITY INDICATOR SWITCH (LATE A-4E)
24. PRESSURE RATIO INDICATOR
25. OIL PRESSURE INDICATOR
26. TACHOMETER
27. EXHAUST GAS TEMPERATURE INDICATOR
28. FUEL FLOW INDICATOR
29. FUEL QUANTITY INDICATOR
30. RADAR ALTIMETER
31. DEAD RECKONING INDICATOR (EARLY A-4E)
32. RADAR ALTIMETER LOW-LIMIT WARNING LIGHT
33. STANDBY ATTITUDE INDICATOR
34. SIDS CONT-NORM MODE SWITCH
35. ARMAMENT PANEL
36. MISCELLANEOUS SWITCHES PANEL
37. AIRCRAFT WEAPONS RELEASE SYSTEM PANEL (LATE A-4E)
38. OXYGEN QUANTITY INDICATOR
39. BEARING-DISTANCE-HEADING INDICATOR
40. VERTICAL SPEED INDICATOR
41. ALTIMETER
42. ANGLE-OF-ATTACK INDICATOR
43. CAUTION PANEL (LADDER LIGHTS)
44. AIRSPEED INDICATOR
45. GUNSIGHT PANEL
46. TRIM POSITION INDICATOR PANEL
47. EXTERIOR LIGHTS PANEL
48. AIR CONDITIONING PANEL
49. RAIN REMOVAL PANEL

- 49A. FUEL TRANSFER BYPASS SWITCH
50. DOPPLER NAVIGATIONAL COMPUTER (ASN-41) (LATE A-4E)
51. SPARE LAMPS CONTAINER (NOT REWORKED PER A-4 AFC 256)
52. AFCFS TEST SWITCH PANEL (NOT REWORKED PER AFC 256)
53. MISCELLANEOUS SWITCHES PANEL
54. INTERIOR LIGHTS PANEL (REWORKED PER A-4 AFC 428)
55. COMPASS CONTROL PANEL (NOT REWORKED PER A-4 AFC 256)
56. IFF CONTROL PANEL (NOT REWORKED PER A-4 AFC 256)
57. SIF CONTROL PANEL
58. TACAN CONTROL PANEL
59. UHF CONTROL PANEL
60. NAV CONTROL PANEL (ASN-19, EARLY A-4E)
61. OXYGEN, ANTI-G, AND ANTIEXPOSURE SUIT CONTROL PANEL (REWORKED PER A-4 AFC 387)



# A-4G/K

# Front Panel



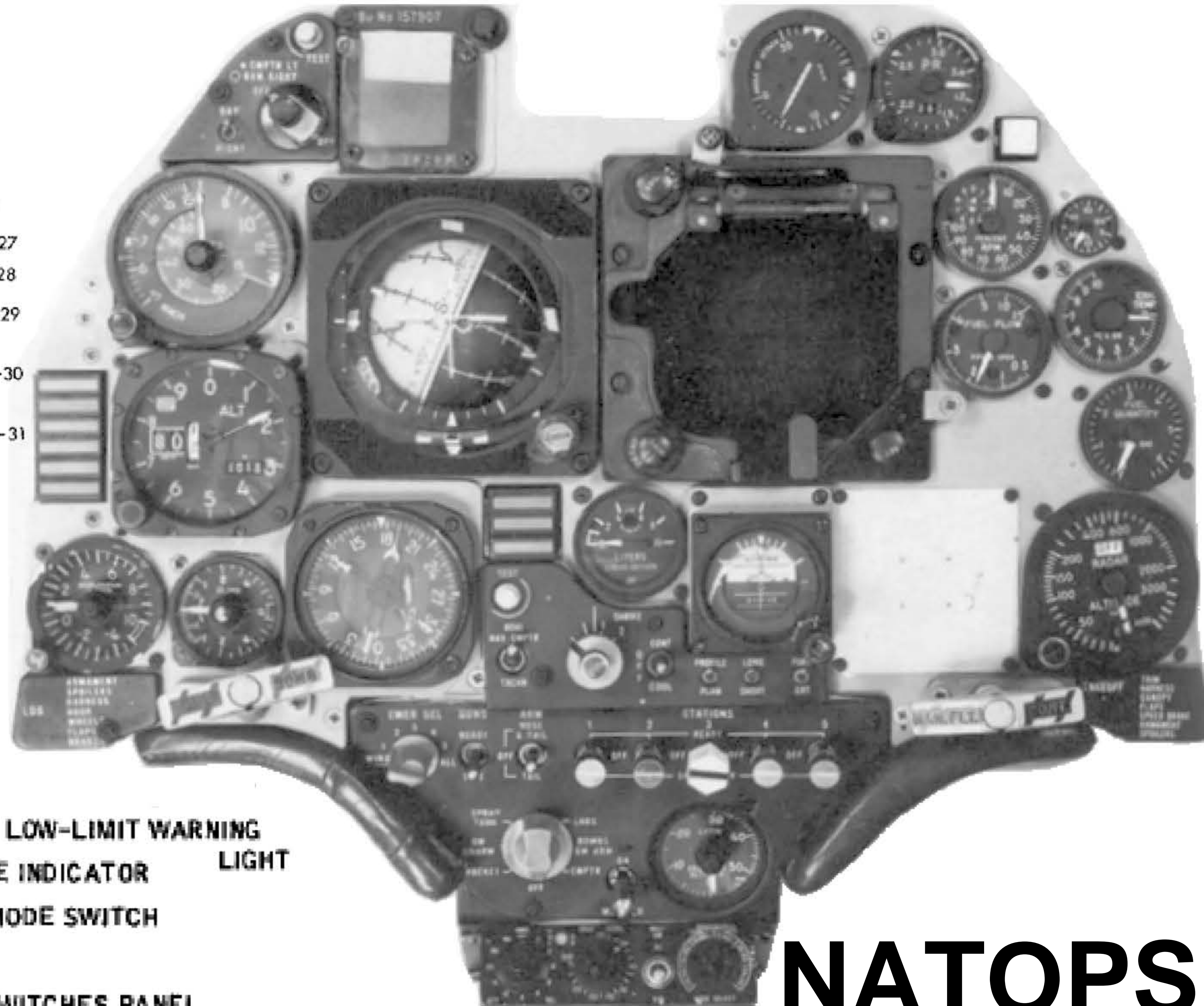
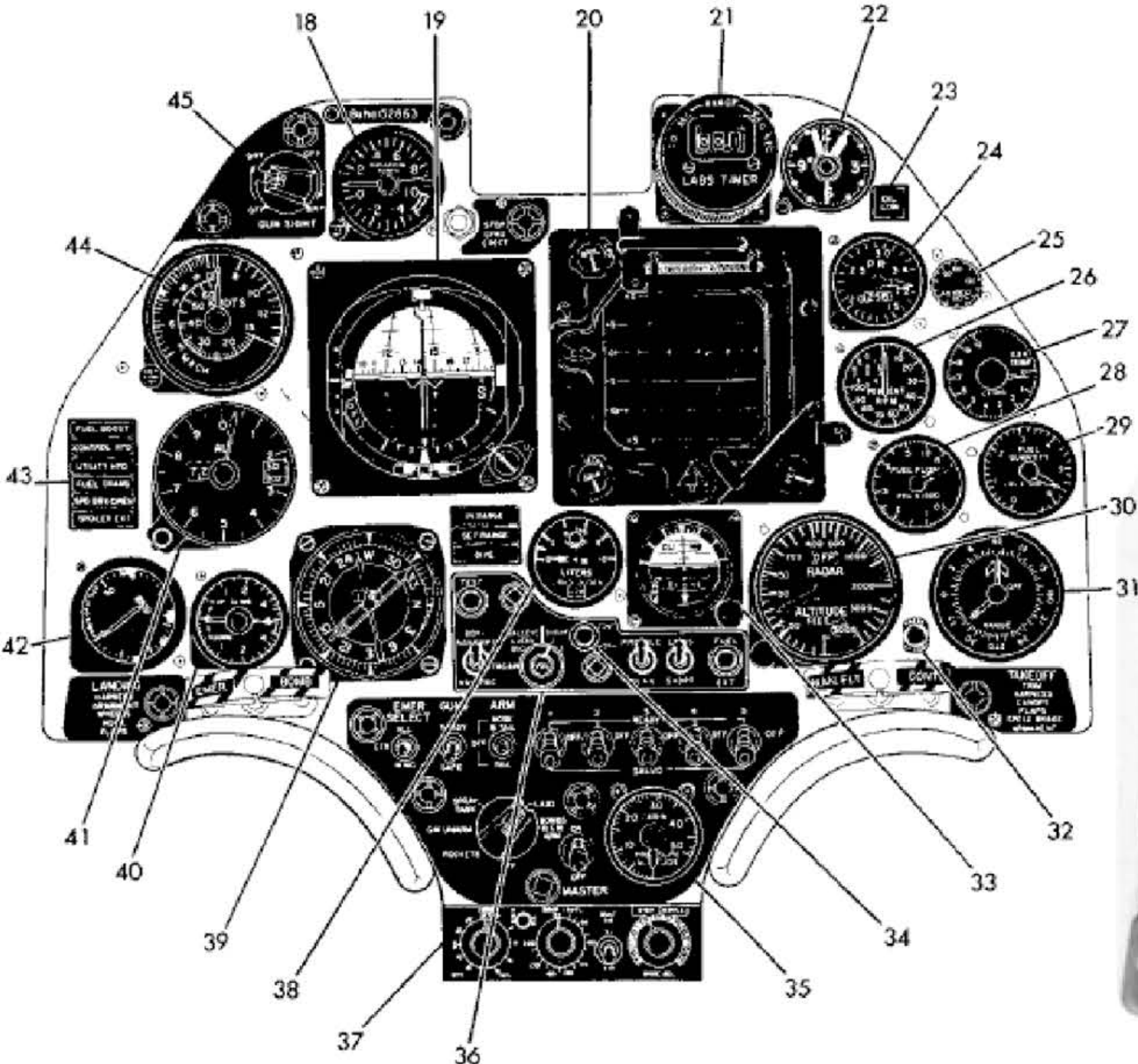
Please see next page for another panel view created by Don Simms

SEE NEXT PAGE



Original A-4K(G) panel displayed at the RNZAF Ohakea Museum — photo from Craig Brankin





# NATOPS A4G Front Panel

18. ACCELEROMETER

19. ALL-ATTITUDE INDICATOR

20. RADAR SCOPE

21. LABS TIMER

22. 8-DAY CLOCK

23. OIL QUANTITY INDICATOR SWITCH (LATE A-4E)

24. PRESSURE RATIO INDICATOR

25. OIL PRESSURE INDICATOR

26. TACHOMETER INDICATOR

27. EXHAUST GAS TEMPERATURE

28. FUEL FLOW INDICATOR

32. RADAR ALTIMETER LOW-LIMIT WARNING

33. STANDBY ATTITUDE INDICATOR LIGHT

34. SIDS CONT-NORM MODE SWITCH

35. ARMAMENT PANEL

36. MISCELLANEOUS SWITCHES PANEL

37. AIRCRAFT WEAPONS RELEASE SYSTEM PANEL

38. OXYGEN QUANTITY INDICATOR (LATE A-4E)

39. BEARING-DISTANCE-HEADING INDICATOR

40. VERTICAL SPEED INDICATOR

41. ALTIMETER

42. ANGLE-OF-ATTACK INDICATOR

29. FUEL QUANTITY INDICATOR

30. RADAR ALTIMETER (EARLY A-4E)

31. DEAD RECKONING INDICATOR

43. CAUTION PANEL (LADDER LIGHTS)

44. AIRSPEED INDICATOR

45. GUNSIGHT PANEL



Original A4G BuNo. 154908 887; ex NZ6214 A-4K KAHU now N144EM

